DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 14, 16, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloren (US PGPub 2003/0201565 A1) in view of Kegasawa (US PN 6896832 B2), Lee (US PN 5733480), and Peiffer (US PN 5716570).

With regard to claims 14, 16, 22, and 23, Cloren teaches a method for producing a multilayered unstretched film (paragraph 16) comprising heating and melting a first thermoplastic resin in a first extruder, heating and melting a second thermoplastic in a second extruder (paragraph 61, line 2), and heating and melting at least one further thermoplastic in another extruder (figure 10 and 11), feeding the first resin through a first melt supply duct, feeding the second resin through a second melt supply duct , and

feeding at least one further resin through a further melt supply duct (figures 6, 7, 10, 11; ducts A-G), widening the first, second, and at least one further resins in first, second, and at least one further manifolds (paragraph 62, 63, 65 68), combining the widened thermoplastic resins at a location immediately above a T-die (figure 6 and 7, item 150; figure 10, item 350; figure 11, item 450) and laminating the thermoplastic resins (paragraph 76, line 12-13), and ejecting the thermoplastic resins through a T-die (paragraph 76, line 18).

Cloren does not explicitly disclose and edge forming resin or the steps associated therewith.

Kegasawa teaches that edge forming resins were known in the art at the time of the invention as suitably applied to layered films (col. 5, line 18-23), and that such edge resins must have a viscosity ratio relative to the layered film no greater than 10 (col. 6, line 13-17), and a specific ratio of 1.2 (col. 9, line 37, 50; col. 10, line 30-32), where the viscosity of the edge resin is higher than the viscosity of the middle resin (col. 5, line 15-17). Although Kegasawa focuses on the extensional viscosity, since the extensional viscosity has an established relationship with shear viscosity, the ratio of the viscosities of the different resins (either extensional or shear) would apply for both viscosities.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the edge resins of Kegasawa in the layered films of Cloren. The rationale to do so would have been the motivation provided by the teaching Kegasawa, that to use such edge resins predictably results in the ability to suppress neck-in (col. 6, line 33-41) even during changing production conditions (abstract, line 6-9). Furthermore

it would have been obvious to one of ordinary skill in the art at the time of the invention to use the viscosity ratio in teaching of Kegasawa. The rationale to do so would have been the motivation provided by the teaching of Kegasawa, that to use such a ratio predictably prevents the separation of the resins (col. 6, line 17-20).

Cloren is silent as to the viscosity of the extruded material.

Lee teaches that known viscosities for extruding films range from 3000 to 10000 poise (col. 5, line 53-60) measured at 100 s^{-1} (col. 6, line 3-4).

It would have been obvious to use the extrusion viscosity in the teaching of Lee as the viscosity range of the films extruded in Cloren in view of Kegasawa. The rationale to do so would have been the motivation provided by the teaching of Lee, that to use such a viscosity range for the extruded material predictably results in the ability to form a mixture that has sufficient processability so as to be readily extruded (col. 5, line 29-30).

Using the known preferred viscosity for an extruded polymer film of Lee (3000 to 10000 poise) and the preferred viscosity difference between the edge film and the primary film of Kegasawa (a ratio less than 10, including 1.2), for an example of a 1.2 ratio, the difference in poise would be 600 to 2000 poise measured at 100 s^{-1}. Kegasawa further discloses that for methods contemplating resins with greater viscosity differences, a different approach for forming the edge resin (figure 3b) must be used in order to take into consideration the problems with film separation (col. 6, line 54-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use resins as close in viscosity as possible so as to minimize the lower the

risk of film separation for the embodiment of figure 3a in the teaching of Kegasawa (col. 9, line 33-57).

Cloren in view of Kegasawa is silent with regard to the method by which the edge resins are introduced to the film and is silent with regard any process steps post film extrusion.

Peiffer teaches a method for producing a multilayered unstretched film comprising heating and melting a first thermoplastic resin in a first extruder (figure 3, EXTR. 1), heating an melting an edge-forming thermoplastic resin in another extruder (figure 3, EXTR. 2), feeding the first heated and melted thermoplastic resin through a first melt supply duct, conveying the heated and melted edge-forming thermoplastic resin to a feed block (figure 3, item 6) through two other melt supply ducts, leading the edge-forming thermoplastic resin to both sides of the first thermoplastic resin through a first hole (figure 3, the intersection of the other two melt supply ducts for EXTR. 2 with feed block 6), wherein the first hole is formed on both sides of the lower part of the melt supply duct, and which holes are connected to the end of the other two melt supply ducts, and ejecting the laminated thermoplastic resins through a die lip of the T-die onto a casting roll below the T-die (col. 7, line 37-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method in the teaching of Peiffer to introduce the edge resin in the teaching of Cloren in view of Kegasawa. The rationale to do so would have been the motivation provided by the teaching of Peiffer, that to use such a method to introduce the edge resin to the edges of the thermoplastic film predictably results in the ability to

simultaneously extrude the melts (col. 2, line 15-19) so as to form a shaped flat sheet (col. 1, line 20), the same desire as for the shaped film in the teaching of Cloren (paragraph 11). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to extrude the film in the teaching of Cloren onto a roll as in the teaching of Peiffer. The rationale to do so would have been the motivation provided by the teaching of Peiffer, that such rolls predictably result in the successful solidification of the film (col. 7, line 37-38).

4. Claims 15, 17, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloren (US PGPub 2003/0201565 A1) in view of Kegasawa (US PN 6896832 B2), Lee (US PN 5733480), Peiffer (US PN 5716570), and Mori (JP 2003-291258).

With regard to claims 14, 16, 26, and 27, Cloren teaches a method for producing a multilayered unstretched film (paragraph 16) comprising heating and melting a first thermoplastic resin in a first extruder, heating and melting a second thermoplastic in a second extruder (paragraph 61, line 2), and heating and melting at least one further thermoplastic in another extruder (figure 10 and 11), feeding the first resin through a first melt supply duct, feeding the second resin through a second melt supply duct , and feeding at least one further resin through a further melt supply duct (figures 6, 7, 10, 11; ducts A-G), widening the first, second, and at least one further resins in first, second, and at least one further manifolds (paragraph 62, 63, 65 68), combining the widened thermoplastic resins at a location immediately above a T-die (figure 6 and 7, item 150;

figure 10, item 350; figure 11, item 450) and laminating the thermoplastic resins (paragraph 76, line 12-13), and ejecting the thermoplastic resins through a T-die (paragraph 76, line 18).

Cloren does not explicitly disclose and edge forming resin or the steps associated therewith.

Kegasawa teaches that edge forming resins were known in the art at the time of the invention as suitably applied to layered films (col. 5, line 18-23), and that such edge resins must have a viscosity ratio relative to the layered film no greater than 10 (col. 6, line 13-17), and a specific ratio of 1.2 (col. 9, line 37, 50; col. 10, line 30-32), where the viscosity of the edge resin is higher than the viscosity of the middle resin (col. 5, line 15-17). Although Kegasawa focuses on the extensional viscosity, since the extensional viscosity has an established relationship with shear viscosity, the ratio of the viscosities of the different resins (either extensional or shear) would apply for both viscosities.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the edge resins of Kegasawa in the layered films of Cloren. The rationale to do so would have been the motivation provided by the teaching Kegasawa, that to use such edge resins predictably results in the ability to suppress neck-in (col. 6, line 33-41) even during changing production conditions (abstract, line 6-9). Furthermore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the viscosity ratio in teaching of Kegasawa. The rationale to do so would have been the motivation provided by the teaching of Kegasawa, that to use such a ratio predictably prevents the separation of the resins (col. 6, line 17-20).

Cloren is silent as to the viscosity of the extruded material.

Lee teaches that known viscosities for extruding films range from 3000 to 10000 poise (col. 5, line 53-60) measured at 100 s^{-1} (col. 6, line 3-4).

It would have been obvious to use the extrusion viscosity in the teaching of Lee as the viscosity range of the films extruded in Cloren in view of Kegasawa. The rationale to do so would have been the motivation provided by the teaching of Lee, that to use such a viscosity range for the extruded material predictably results in the ability to form a mixture that has sufficient processability so as to be readily extruded (col. 5, line 29-30).

Using the known preferred viscosity for an extruded polymer film of Lee (3000 to 10000 poise) and the preferred viscosity difference between the edge film and the primary film of Kegasawa (a ratio less than 10, including 1.2), for an example of a 1.2 ratio, the difference in poise would be 600 to 2000 poise measured at 100 s^{-1}. Kegasawa further discloses that for methods contemplating resins with greater viscosity differences, a different approach for forming the edge resin (figure 3b) must be used in order to take into consideration the problems with film separation (col. 6, line 54-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use resins as close in viscosity as possible so as to minimize the lower the risk of film separation for the embodiment of figure 3a in the teaching of Kegasawa (col. 9, line 33-57).

Cloren in view of Kegasawa is silent with regard to the method by which the edge resins are introduced to the film and is silent with regard any process steps post film extrusion.

Peiffer teaches a method for producing a multilayered unstretched film comprising heating and melting a first thermoplastic resin in a first extruder (figure 3, EXTR. 1), heating an melting an edge-forming thermoplastic resin in another extruder (figure 3, EXTR. 2), feeding the first heated and melted thermoplastic resin through a first melt supply duct, conveying the heated and melted edge-forming thermoplastic resin to a feed block (figure 3, item 6) through two other melt supply ducts, leading the edge-forming thermoplastic resin to both sides of the first thermoplastic resin through a first hole (figure 3, the intersection of the other two melt supply ducts for EXTR. 2 with feed block 6), wherein the first hole is formed on both sides of the lower part of the melt supply duct, and which holes are connected to the end of the other two melt supply ducts.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method in the teaching of Peiffer to introduce the edge resin in the teaching of Cloren in view of Kegasawa. The rationale to do so would have been the motivation provided by the teaching of Peiffer, that to use such a method to introduce the edge resin to the edges of the thermoplastic film predictably results in the ability to simultaneously extrude the melts (col. 2, line 15-19) so as to form a shaped flat sheet (col. 1, line 20), the same desire as for the shaped film in the teaching of Cloren (paragraph 11).

Cloren does not explicitly disclose ejecting the laminated thermoplastic resin onto a metal sheet disposed below the T-die.

Mori teaches multilayered (human translation, paragraph 36, film A, layer I and II) multicomponent (human translation, paragraph 36 and 37, films A and B, material of layers I and II and olefin monomer material of edge portions) laminated thermoplastic resin onto a metal sheet (paragraph 23) disposed below the T-die (paragraph 18, line 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to coat a metal sheet as in the teaching of Mori with the laminate in the teaching of Cloren. The rationale to do so would have been the motivation provided by the teaching of Mori, that to coat a metal sheet with a multilayered thermoplastic film, such as a film produced by the method in the teaching of Cloren, predictably results in the formation of metal sheets that are suitable for use in metal cans (paragraph 1).

5. Claims 18-21, 24, 25, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloren (US PGPub 2003/0201565 A1) in view of Kegasawa (US PN 6896832 B2), Lee (US PN 5733480), and Peiffer (US PN 5716570), as applied for claims 14, 16, 22, and 23 above, and over Cloren (US PGPub 2003/0201565 A1) in view of Kegasawa (US PN 6896832 B2), Lee (US PN 5733480), Peiffer (US PN 5716570) and Mori (JP 2003-291258), as applied for claims 15, 17, 26, and 27 above, and in further view of Wenz (US PN 4731004).

With regard to claims 18-21, Cloren does not explicitly disclose the shape of the melt supply duct as rectangular or cross section of the edge forming resin.

Wenz teaches that using rectangular supply ducts and holes, including the lower parts of such ducts, when making multicomponent thermoplastic sheets was known in the art the time of the invention (Wenz: col. 3, line 4-7; figure 9a, item 62, 64, 66, and 68).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use rectangular supply ducts and holes as in the teaching of Wenz in the process of Cloren in view of Kegasawa, Lee, and Peiffer. The rationale to do so would have been the motivation provided by the teaching of Wenz, that to use such rectangular shapes predictably results in the formation of an entry point with uniform cross section (col. 3, line 5-7) thereby producing a film with a desirably controlled overlap of the resins (col. 3, line 30-42) as would have been determined by one of ordinary skill in the art (col. 3, line 43-51).

Since Cloren in view of Kegasawa, Lee, Peiffer, and Wenz teaches the same method as claimed by applicant, the cross section of the edge forming resin must also have been the same as claimed by applicant.

With regard to claims 24, 25, 28 and 29, Cloren does not explicitly disclose the edge-forming thermoplastic resin is a colored thermoplastic resin.

Wenz teaches that a colored thermoplastic resin edge was known in the art at the time of the invention (col. 9, line 37-40; col. 10, line 1-5; figure 11).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a colored thermoplastic resin as in the teaching of Wenz in the process in the teaching of Cloren in view of Kegasawa, Lee, and Peiffer, or Cloren in view of Kegasawa, Lee, Peiffer, and Mori. The rationale to do so would have been the motivation provided by the teaching of Wenz, that to have such a colored thermoplastic resin predictably results in the formation of colored plastic areas within thermoplastic resin sheets that are useful for achieving desired aesthetic effects (col. 9, line 40-43) as would have been determined by one of ordinary skill in the art (col. 3, line 43-51).

Response to Arguments

6. Applicant's arguments with respect to claims 14-29 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIZABETH ROYSTON whose telephone number is (571)270-7654. The examiner can normally be reached on M-F 10:00am - 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. R./

Examiner, Art Unit 1747

/Richard Crispino/
Supervisory Patent Examiner, Art Unit 1747